SEQUENCE LISTING

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PRICKETT, KATHRYN S.

<120> INOTROPIC AND DIURETIC EFFECTS OF GLP-1 AND GLP-1 AGONISTS

<130> 256-152DIV US

<140> 10/656,093
<141> 2003-09-05

<160> 75

<170> PatentIn Ver. 2.1

<210> 1
<211> 39
<212> PRT
<213> Heloderma horridum

<220>
<223> Exendin-3

<400> 1
His Ser Asp Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
                20   25   30

Ser Gly Ala Pro Pro Pro Ser
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<210> 2
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<213> Heloderma suspectum

<220>
<223> Exendin-4

<400> 2
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
                20   25   30

Ser Gly Ala Pro Pro Pro Ser
            35

<210> 3
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<212> PRT
<213> Homo sapiens

<220>
<223> GLP-1

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His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1               5                  10                  15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
             20                  25                  30


<210> 4
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<220>
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<223> His, Arg or Tyr

<220>
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<222> (2)
<223> Ser, Gly, Ala or Thr

<220>
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<223> Asp, Ala or Glu

<220>
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<222> (5)
<223> Ala or Thr

<220>
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<223> Ala, Phe, Tyr or naphthylalanine

<220>
<221> MOD_RES
<222> (7)
<223> Thr or Ser

<220>
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<222> (8)
<223> Ala, Ser or Thr

<220>
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<222> (9)
<223> Asp or Glu

<220>
<221> MOD_RES
<222> (10)
<223> Ala, Leu, Ile, Val, pentylglycine or Met
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<223> Ala or Ser

<220>
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<222> (12)
<223> Ala or Lys

<220>
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<223> Ala or Gln

<220>
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<223> Ala, Leu, Ile, pentylglycine, Val or Met

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<222> (15)...(17)
<223> Ala or Glu

<220>
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<222> (19)
<223> Ala or Val

<220>
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<223> Ala or Arg

<220>
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<223> Ala or Leu

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<223> Phe, Tyr or naphthylalanine

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<222> (23)
<223> Ile, Val, Leu, pentylglycine, tert-butylglycine or Met

<220>
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<222> (24)
<223> Ala, Glu or Asp

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<223> Ala, Trp, Phe, Tyr or naphthylalanine

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<221> MOD_RES
<222> (26)
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<223> Ala or Leu

<220>
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<220>
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<220>
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<220>
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<222> (36)..(38)
<223> Pro, homoproline, 3Hyp, 4Hyp, thioproline, N-alkylglycine
      N-alkylpentylglycine or N-alkylalanine

<220>
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<220>
<223> provided no more than three of Xaa3, Xaa5, Xaa6, Xaa8,
      Xaa10, Xaa11, Xaa12, Xaa13, Xaa14, Xaa15, Xaa16, Xaa17,
      Xaa19, Xaa20, Xaa21, Xaa24, Xaa25, Xaa26, Xaa27 or Xaa28

are Ala; and the compound is not exendin-3 or exendin-4

<220>
<223> this peptide may encompass 28-39 residues, wherein
residues 1-28 are constant and residues 29-39 may vary
in length according to the specification

<400> 4
Xaa Xaa Xaa Gly Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1   5   10   15

Xaa Ala Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
        20   25   30

Xaa Xaa Xaa Xaa Xaa Xaa Xaa
        35

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<213> Artificial Sequence

<220>
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GLP-1 agonist

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<223> C-term may be amidated

<400> 5
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly
        20   25   30

<210> 6
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
GLP-1 agonist

<220>
<223> C-term amidated

<400> 6
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn
        20   25

<210> 7
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<213> Artificial Sequence

<220>

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<220>
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<400> 7
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
            20   25

<210> 8
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<213> Artificial Sequence

<220>
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<220>
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His Ala Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
            20   25

<210> 9
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<212> PRT
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<220>
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<220>
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His Gly Glu Gly Ala Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
            20   25

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<220>
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His Gly Glu Gly Thr Ala Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
            20   25

<210> 11
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<220>
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<220>
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<400> 11
His Gly Glu Gly Thr Phe Thr Ala Asp Leu Ser Lys Gln Leu Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
            20   25

<210> 12
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<220>
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His Gly Glu Gly Thr Phe Thr Ser Asp Ala Ser Lys Gln Leu Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
            20   25

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<220>
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<400> 13

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 1               5                   10                  15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
                20                  25
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<400> 14

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Ala Leu Glu Glu
 1               5                   10                  15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
                20                  25
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<210> 15
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<220>
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<400> 15

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Ala Glu Glu
 1               5                   10                  15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
                20                  25
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<210> 16
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<220>
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<400> 16

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Ala Glu Glu
 1               5                   10                  15
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Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
                20   25

<210> 17
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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Ala Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
                20   25

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<220>
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<400> 18
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Ala
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
                20   25

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<220>
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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Ala Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
                20   25

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1               5                  10                  15

Glu Ala Ala Arg Leu Phe Ile Glu Phe Leu Lys Asn
            20                  25


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<220>
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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1               5                  10                  15

Glu Ala Val Ala Leu Phe Ile Glu Phe Leu Lys Asn
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<210> 22
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<220>
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 1               5                  10                  15

Glu Ala Val Arg Ala Phe Ile Glu Phe Leu Lys Asn
            20                  25


<210> 23
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<220>
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 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Ala Phe Leu Lys Asn
            20                  25


<210> 24
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<220>
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<220>
<223> C-term amidated

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 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Glu Ala Leu Lys Asn
            20                  25


<210> 25
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<220>
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 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Glu Phe Ala Lys Asn
            20                  25


<210> 26
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 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Ala Asn
            20                  25


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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Ala
            20                  25


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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20                  25                  30

Ser Gly Ala Pro Pro Pro
            35


<210> 29
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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
            20                  25                  30

Ser Gly Ala Pro Pro Pro
            35


<210> 30
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      GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20                  25                  30

Ser Gly Ala Pro Pro
            35


<210> 31
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<220>
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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
            20                  25                  30

Ser Gly Ala Pro Pro
            35


<210> 32
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<220>
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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly Ala Pro
         35

<210> 33
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<220>
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<400> 33
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly Ala Pro
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<210> 34
<211> 35
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<220>
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<400> 34
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly Ala
            35

<210> 35
<211> 35
<212> PRT
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<220>
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<220>
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<400> 35
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly Ala
            35

<210> 36
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<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<223> C-term amidated

<400> 36
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly

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<220>
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      GLP-1 agonist

<220>
<223> C-term amidated

<400> 37
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
  1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly

<210> 38
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<212> PRT
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<220>
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<220>
<223> C-term amidated

<400> 38
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
  1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser

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<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<223> C-term amidated

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
  1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser

<210> 40
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<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

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<223> C-term amidated

<400> 40
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

<210> 41
<211> 32
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<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<223> C-term amidated

<400> 41
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
            20   25   30

<210> 42
<211> 31
<212> PRT
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<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<400> 42
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro
            20   25   30

<210> 43
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
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      GLP-1 agonist

<220>
<223> C-term amidated

<400> 43
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro
            20   25   30

<210> 44
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<220>
<223> Description of Artificial Sequence: Exendin or
     GLP-1 agonist

<400> 44
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly
            20   25   30

<210> 45
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<220>
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     GLP-1 agonist

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly
            20   25

<210> 46
<211> 29
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<220>
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     GLP-1 agonist

<220>
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<400> 46
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly
            20   25

<210> 47

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<223> tPro

<220>
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<222> (36)..(38)
<223> tPro

<220>
<223> C-term amidated

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His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
            20   25   30

Ser Gly Ala Xaa Xaa Xaa
         35

<210> 48
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<220>
<223> Description of Artificial Sequence: Exendin or
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<221> MOD_RES
<222> (36)..(38)
<223> tPro

<220>
<223> C-term amidated

<400> 48
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly Ala Xaa Xaa Xaa
         35

<210> 49
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<213> Artificial Sequence

<220>
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<223> NMeala

<220>
<223> C-term amidated

<400> 49
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
            20   25   30

Ser Gly Ala Pro Pro
            35

<210> 50
<211> 37
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<221> MOD_RES
<222> (31)
<223> NMeala

<220>
<221> MOD_RES
<222> (36)..(37)
<223> NMeala

<220>
<223> C-term amidated

<400> 50
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
            20   25   30

Ser Gly Ala Xaa Xaa
            35

<210> 51
<211> 37
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
     GLP-1 agonist

<220>
<221> MOD_RES
<222> (31)
<223> hPro

<220>
<221> MOD_RES
<222> (36)..(37)
<223> hPro

<220>
<223> C-term amidated

<400> 51
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
            20   25   30

Ser Gly Ala Xaa Xaa
            35

<210> 52
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
     GLP-1 agonist

<220>
<221> MOD_RES
<222> (31)
<223> hPro

<220>
<221> MOD_RES
<222> (36)
<223> hPro

<220>
<223> C-term amidated

<400> 52
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
            20   25   30

Ser Gly Ala Xaa
            35

<210> 53
<211> 35

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
     GLP-1 agonist

<220>
<223> C-term amidated

<400> 53
Arg Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly Ala
        35

<210> 54
<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
     GLP-1 agonist

<220>
<223> C-term amidated

<400> 54
His Gly Asp Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly
            20   25   30

<210> 55
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<221> MOD_RES
<222> (6)
<223> Naphthylala

<220>
<223> C-term amidated

<400> 55
His Gly Glu Gly Thr Xaa Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn

<210> 56
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<223> C-term amidated

<400> 56
His Gly Glu Gly Thr Phe Ser Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn
            20   25

<210> 57
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<223> C-term amidated

<400> 57
His Gly Glu Gly Thr Phe Ser Thr Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn
            20   25

<210> 58
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<223> C-term amidated

<400> 58
His Gly Glu Gly Thr Phe Thr Ser Glu Leu Ser Lys Gln Met Ala Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn
            20   25

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<210> 59
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<221> MOD_RES
<222> (10)
<223> pentylgly

<220>
<223> C-term amidated

<400> 59
His Gly Glu Gly Thr Phe Thr Ser Asp Xaa Ser Lys Gln Leu Glu Glu
 1               5                  10                  15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn
            20                  25


<210> 60
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<221> MOD_RES
<222> (22)
<223> Naphthylala

<220>
<223> C-term amidated

<400> 60
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1               5                  10                  15

Glu Ala Val Arg Leu Xaa Ile Glu Phe Leu Lys Asn
            20                  25


<210> 61
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<221> MOD_RES
<222> (23)
<223> tButylgly
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<220>
<223> C-term amidated

<400> 61
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Xaa Glu Trp Leu Lys Asn
            20   25

<210> 62
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
     GLP-1 agonist

<220>
<223> C-term amidated

<400> 62
His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Asp Phe Leu Lys Asn
            20   25

<210> 63
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
     GLP-1 agonist

<220>
<223> C-term amidated

<400> 63
His Gly Glu Gly Thr Phe Thr Ser Asp Ala Ser Lys Gln Leu Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Phe Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser

<210> 64
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
     GLP-1 agonist

<220>
<223> C-term amidated

<400> 64
His Gly Glu Gly Thr Phe Thr Ser Asp Ala Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly
            20   25

<210> 65
<211> 37
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Exendin or
      GLP-1 agonist

<220>
<221> MOD_RES
<222> (31)
<223> hPro

<220>
<221> MOD_RES
<222> (36)..(37)
<223> hPro

<220>
<223> C-term amidated

<400> 65
His Gly Glu Gly Thr Phe Thr Ser Asp Ala Ser Lys Gln Met Glu Glu
 1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa Ser
            20   25   30

Ser Gly Ala Xaa Xaa
         35

<210> 66
<211> 29
<212> PRT
<213> artificial sequence

<220>
<223> Agonist of GLP-1

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Ala is modified with an R group which can be 4-imidazopropionyl
      (des-amino-histidyl), 4-imidazoacetyl, or 4-imidazo-a,
      adimethyl-acetyl

<220>
<221> MOD_RES

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<222> (19)..(19)
<223> Xaa is a Lys or Arg


<220>
<221> MOD_RES
<222> (27)..(27)
<223> Lys is modified with an R group consisting of C6 -C10 unbranched
      acyl, or is absent

<220>
<221> MOD_RES
<222> (29)..(29)
<223> Arg is modified with an R group consisting of Gly-OH or NH2

<400> 66

Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln
1               5                   10                  15


Ala Ala Xaa Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
            20              25


<210> 67
<211> 19
<212> PRT
<213> artifical sequence


<220>
<221> MOD_RES
<222> (1)..(1)
<223> Ser is modified by H2N, H2N-Ser, H2N-Val-Ser, H2N-Asp-Val-Ser. or
      any one of SEQ ID NO:68 to 74

<220>
<221> MOD_RES
<222> (17)..(17)
<223> Xaa is a Lys or Arg .


<220>
<221> MOD_RES
<222> (19)..(19)
<223> Arg can be modified by the group consisting of NH2, OH, Gly-NH2,
      or Gly-OH

<400> 67

Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val
1               5                   10                  15


Xaa Gly Arg


<210> 68
<211> 4
<212> PRT
<213> artificial sequence
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<220>
<223> variable sequence insert for artificial GLP-1 analog

<400> 68

Ser Asp Val Ser
1

<210> 69
<211> 5
<212> PRT
<213> artificial sequence

<220>
<223> variable sequence insert for artificial GLP-1 analog

<400> 69

Thr Ser Asp Val Ser
1   5

<210> 70
<211> 6
<212> PRT
<213> artificial sequence

<220>
<223> variable sequence insert for artificial GLP-1 analog

<400> 70

Phe Thr Ser Asp Val Ser
1   -   5

<210> 71
<211> 7
<212> PRT
<213> artificial sequence

<220>
<223> variable sequence insert for artificial GLP-1 analog

<400> 71

Thr Phe Thr Ser Asp Val Ser
1   5

<210> 72
<211> 8
<212> PRT
<213> artificial sequence

<220>
<223> variable sequence insert for artificial GLP-1 analog

<400> 72

Gly Thr Phe Thr Ser Asp Val Ser

1   5


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<210>  73
<211>  9
<212>  PRT
<213>  artificial sequence

<220>
<223>  variable sequence insert for artificial GLP-1 analog

<400>  73

Glu Gly Thr Phe Thr Ser Asp Val Ser
1             5


<210>  74
<211>  10
<212>  PRT
<213>  artificial sequence

<220>
<223>  variable sequence insert for artificial GLP-1 analog

<400>  74

Ala Glu Gly Thr Phe Thr Ser Asp Val Ser
1             5                  10


<210>  75
<211>  29
<212>  PRT
<213>  artificial sequence

<220>
<223>  artificial


<220>
<221>  MOD_RES
<222>  (1)..(1)
<223>  neurtal amino acid or D or N-acylated or alkylated form of
       histidine can be substituted for His

<220>
<221>  MOD_RES
<222>  (2)..(2)
<223>  small neutral amino acid can be substituted for Ala

<220>
<221>  MOD_RES
<222>  (3)..(3)
<223>  acidic or neutral amino acid can be substituted for Glu

<220>
<221>  MOD_RES
<222>  (4)..(4)
<223>  neutral amino acid can be substituted for Gly

<220>
<221>  MOD_RES
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2nd Revised 256-152div corrected in response to notice to comply.txt
<222> (9)..(9)
<223> acidic amino acid can be substituted for Asp

<220>
<221> MOD_RES
<222> (10)..(10)
<223> Tyr can be substituted for Val

<220>
<221> MOD_RES
<222> (12)..(12)
<223> Lys can be substituted for Ser

<220>
<221> MOD_RES
<222> (15)..(15)
<223> Asp can be substituted for Glu

<220>
<221> MOD_RES
<222> (16)..(16)
<223> Ser can be substituted for Gly

<220>
<221> MOD_RES
<222> (17)..(17)
<223> Arg can be substituted for Gln

<220>
<221> MOD_RES
<222> (18)..(18)
<223> Arg can be substituted for Ala

<220>
<221> MOD_RES
<222> (20)..(20)
<223> Lys can be substituted for a neutral amino acid, arg, or a D form
of lys

<220>
<221> MOD_RES
<222> (20)..(20)
<223> Gln can be substituted for Lys

<220>
<221> MOD_RES
<222> (25)..(25)
<223> Trp can be substituted for an oxidation-resistant amino acid

<220>
<221> MOD_RES
<222> (28)..(28)
<223> Lys can be substituted for a neutral amino acid, arg, or a D form
of lys

<220>
<221> MOD_RES
<222> (29)..(29)
<223> Xaa is a Gly, Gly-Arg, Gly-Arg-Gly, or absent

<400> 75

2nd Revised 256-152div corrected in response to notice to comply.txt

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1   5   10   15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Xaa
            20   25